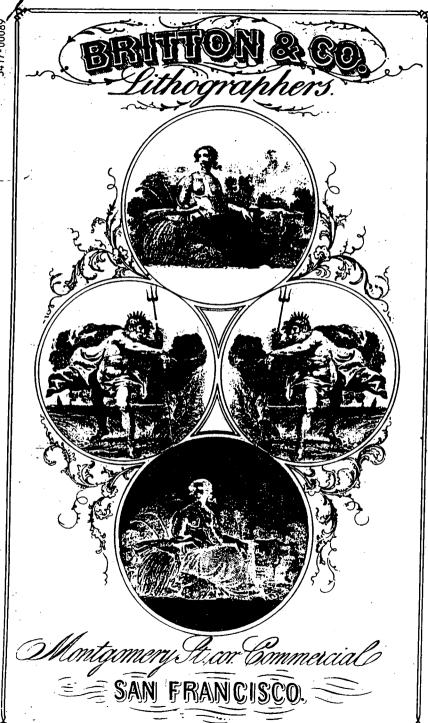
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FIRST DIRECTORY OF

NEVADA TERRITORY

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CONTAINING:

THE NAMES OF RESIDENTS IN THE

PRINCIPAL TOWNS; A HISTORICAL SKETCH;

THE ORGANIC ACT, AND OTHER POLITICAL MATTERS

OF INTEREST; TOGETHER WITH A DESCRIPTION

OF ALL THE QUARTZ MILLS; REDUCTION WORKS,

AND ALL OTHER INDUSTRIAL ESTABLISHMENTS

IN THE TERRITORY; AS ALSO OF THE LEADING

MINING CLAIMS; AND VARIOUS MINERAL DISCOVERIES,

WORKS OF INTERNAL IMPROVEMENTS, ETC,

WITH A TABLE OF DISTANCES, LIST OF PUBLIC OFFICERS,

AND OTHER USEFUL INFORMATION.

COMPILED FROM THE MOST RECENT AND AUTHENTIC SOURCES, by J. WELLS KELLY

AND INCLUDING
SKETCHES OF THE WASHOE

SILVER MINES

by HENRY DE GROOT

Nevada Coll

INTRODUCTION
by RICHARD LINGENFELTER

THE TALISMAN PRESS
Los Gatos, California 1962

about the mine; seven tons of rock are worked daily, and the product of the mine since being opened is about one hundred and fifty thousand dollars. "The Veatch Process," an improvement on the Freyburg, being both cheaper and more effectual, is used in this establishment, under direction of Mr. Andrew Veatch.

GOULD AND CURRY MILL. The mill of this company is located about two miles northeast of Virginia City, on an inclosed flat of sixty acres, and with its numerous out-buildings and houses for workmen, presents the appearance of a small town. The main edifice, in the shape of a cross, is two hundred and fifty feet long, with wings seventy-five feet each, being the largest building in the Territory. It is divided into compartments,—that for the work of amalgamating under the charge of Capt. S. Tyler, being eighty-seven and one half feet deep and fifty feet wide, two stories high. The center of the building, occupied by the batteries, is one hundred and twentyfive by fifty feet, and contains eight batteries of five stamps each, capable of crushing forty tons of ore per day. The engine of one hundred and fifty-horse power, and very perfect workmanship, is from the Pacific Foundry, San Francisco. There are six furnaces and three boilers, the latter twenty-six feet long and forty-two inches diameter, with fourteen-inch flues. The engine room is of the same size as the amalgamating department. The mill, under superintendence of R. G. Carlyle, employs sixty men, working by relay night and day. The ore house and drying department is one hundred by eighty feet. A feature of this establishment is the perfectness that marks it in every department and operation, and the great economy of labor secured thereby. It not only exceeds in capacity any other quartz mill in the Territory, and perhaps in the world, but also surpasses all others in the completeness of its parts. The Veatch Process is employed. The mining operations are under the efficient and very successful management of Mr. C. L. Strong.

OGDEN & WILSON Co.'s MILL.—This mill, situated about one quarter of a mile below the town, was put up by George

L. Fuller for the Company in November, 1860, being the first mill completed in the District. The main building is forty by eighty feet, with an extensive shed having a chute for conveying the rock to the batteries. An engine of twenty horse power drives eighteen stamps, crushing twelve tons of rock per day. The rock, after being crushed, is carried by elevators to the second story, where it is bolted into a receiver, and thence conveyed to the amalgamators on the lower floor, an arrangement that saves much manual labor. The erection of this mill, with the necessary adjuncts, cost about forty thousand dollars.

A small mill located near and constructed upon the same plan as Ogden & Wilson's, and intended for custom work, was erected shortly after the latter. The building is twenty-six by forty feet, and has six stamps, propelled by a twelve horse power engine. The establishment cost about twenty thousand dollars, employs six hands, and is under the superintendence of J. T. Brown.

THE CEDAR HILL MILL, owned by Patterson & Land, is situated on Cedar Ravine, one mile west of Virginia. It employs eight men; has four straight batteries, four stamps each, and crushes twenty tons, running night and day. The engine, forty horse power, comes from the Pacific Foundry, San Francisco. In the amalgamating department there are eight Knox's Improved Pans. The Jeffrey process is used. This mill does custom work, and cost about thirty-five thousand dollars.

THE MARIPOSA QUARTZ MILL—Goodman & Hubbell, proprietors—is located at the foot of Cedar Hill. It is propelled by a fifteen horse power steam-engine, driving twelve stamps of six hundred pounds each, and crushing fifteen tons of rock per day. Knox's pans and the Hungarian Bowls are used in the amalgamating department, the pulp being also subjected to a steaming process, as heretofore practiced by the proprietors. Cost of mill about twenty thousand dollars.

THE EMPIRE MILL, a short distance east of the town—O. F. Griffin, Mark Sheldon and W. H. Graves, proprietors—runs

STOREY COUNTY.

A011021

sixteen stamps, driven by a powerful steam-engine, crushing twenty tons of rock per twenty-four hours. This company purchase their ore, employ twenty hands, and use the Veatch Process, Wakelee's pans. Cost of mill, forty thousand dollars. W. H. Graves, Superintendent; W. T. Stephens, engineer; W. H. Bevins, foreman. The company are building a new road to their mill; and intend soon to double its crushing capacity, as they have sufficient propelling power to do so.

Three quartz mills are in course of construction in Seven Mile Cañon, within the limits of Virginia District. Of one of these, Booth & Co., formerly of Eureka, Nevada County, are proprietors. Of another, Patterson & Co. are proprietors. This is a large sized mill and nearly completed. The entire cost of these mills will be between seventy-five and one hundred thousand dollars. Their aggregate capacity will be about fifty horse power.

FLOWERY DISTRICT.

This District, lying east and adjoining the Virginia Mining District, was laid out in the fall of '59, a great many goodlooking ledges having been found there, several of which have since been opened and proved to be rich in gold and silver. Many of the claims at first taken up were afterwards abandoned as worthless; of those retained and prospected to a greater or less extent we may name the Lady Bryan, Rogers, Monte Cristo, Utah, Norman, Cherokee, Harrison, Flowery, Adriatic, Union, Aurora Borealis, Uncle Sam, Desert, Anglo Saxon, Humboldt, St. Johns, and Mammoth. The recent census showed this district to contain three hundred and thirtynine inhabitants, a number that has since been largely increased. Running entirely across it is Six Mile Casion, a deep ravine, through which, since the opening of the tunnels at Virginia, several hundred inches of water flow constantly. This water has led to the building of a number of steam quartz mills, and two or three others driven by water, which, besides enhancing the value of the mines, by giving employment to a great many hands, have caused a small town, called Flowery City, to spring up at a point about half way down the canon. It is a smart

little place, as indeed the whole ravine is an active and bustling locality, both by means of the numerous mills along it, and the fine road leading from Virginia to Carson River, and the Butte or Whitman Coal Fields, extending its entire length.

Quartz Mills.

The following are the quartz mills now in operation in this District:

SUNCOOK MILL—A. Bassett & Co., owners—located a short distance below the Gould & Curry Mill; building fifty feet by forty; four straight batteries, sixteen stamps, driven by a thirty horse power engine, from Pacific Works, San Francisco; crush twenty-four tons every twenty-four hours; employ ten men and use sixteen Varney pans for amalgamating. A. Bassett, superintendent; S. Kellogg, engineer.

WINFIELD MILL—L. A. Booth, proprietor. This is a steam mill, being driven by a forty horse power engine, intended to run twenty stamps, though but eight are now in use, and to crush twenty tons of rock per day. In amalgamating, forty Bertola pans are used. Seven men are employed. John Leavitt, superintendent; M. L. Remington, engineer.

EMPIRE STATE MILL—R. M. Billett & Co., proprietors—situated at foot of Sugar Loaf Peak. Both water and steam are used for propelling this mill, either being available for that purpose. The water-wheel is forty feet in diameter, and the engine of twenty horse power. The mill employs eight hands, runs ten stamps, and crushes twelve tons per day. The company purchase ore or crush rock for customers. They use Knox's amalgamators and Howland's patent flues.

Sugar Loaf Mill—Rafael Cardenas, José Ma Ruiz, and Francisco Llaguna, proprietors—near Sugar Loaf Peak; driven by water falling on an overshot wheel and generating about a twenty horse power. The mill has four stamps, employs three men, and uses what is known as the Mexican process in amalgamating the ores. It has thus far been successful in its operation, and is soon to be enlarged, as the power is sufficient to carry eight or ten stamps.

THE FLOWERY MILL, three miles east of Virginia, is d-iven by a forty horse power steam engine, made at the Vulcan Works, San Francisco. It runs but eight stamps, crushing twelve tons at present, though its crushing apparatus will be extended to its full capacity as occasion may require. This mill is erected for custom work, runs night and day, and employs twenty men, and uses Dr. Veatch's Process. A. C. Austin, superintendent.

THE BERTOLA MILL, No. 2, is situated at the junction of the Flowery Toll-road and Desert Canon; water power, with wheel forty-two feet in diameter. Has ten stamps and thirty amalgamating pans of the Bertola patent-to be increased to sixty; employs ten hands, runs day and night, and crushes ten tons of rock per twenty-four hours. L. B. Brooks, superintendent.

THE OLIVE BRANCH MILL, driven by a thirty horse power steam engine, crushes about twenty-four tons of rock per day. It runs sixteen stamps and thirty-two of Knox's amalgamators. The building covering this mill is seventy-two feet long and sixty wide. Connected with the establishment is a laboratory for testing ores. It does custom work, employs twelve men, and runs night and day. Israel W. Knox, superintendent.

IN THE CASTLE DISTRICT, north of Virginia, a number of ledges have been located, and samples of rock have been found that assay from fifty to two hundred dollars a ton in gold and silver. A considerable amount of work has been done on the Monticello, Alliance, St. Valentine, Northern Light, Pine Tree, and several other ledges.

VIRGINIA CITY.

ABBREVIATIONS.

bds.....boards. nr....near. res.....resides. op.....opposite.

ABBOTT Louis, at Fashion Stables Abershaw Isaac, miner, bds Union Hotel Ackerson A. J. millwright, Gould & Curry Mill ADAMS GROVE (Mitchell & Adams) liquors, W side C near Taylor

Adams William, clerk with Mitchell & Adams Ahern C. R. assistant engineer, Gould & Curry Mill Alberts Wilhelm, laborer, bds Wylie's Hotel

Allard Joseph, amalgamator, Olive Branch Mill

Allbaugh Adam (Wallin Co.) lumberman, 17 miles NW of Virginia

Allbaugh William (Wallin Co.) lumberman, 17 miles NW of Virginia

Allen A. P., Sierra Saloon, W side A op Sutton Avenue Allen William, stock broker, res W side D near Mill

Allers William, cook, Barnum's Restaurant

ALMACK'S (J. Loryea and J. Stowe, proptrs) SE cor C and Taylor

Alvarez Florentino, miner, W side B near Cedar Hill Alvarez Jesus, miner, W side B near Mill Street Amador Juan N. miner, W side B near Cedar Hill

AMES EDWARD T. lumber, Toll-Road between Gold Hill and Virginia

Anderson Charles, miner, Flowery District

Anderson James, miner, bds Hickey's, W side C nr junction B Anderson J. M. res W side B near Sutton Avenue

ANDERSON & LANSING, attorneys-at-law, B next Fashion Saloon

Anderson Thomas, carpenter, Ophir Claim

ANDERSON W. F. attorney-at-law, W side B near Sutton Avenue

Andrews A. J. miner, bds Union Hotel

Andrews J. R. painter, bds Merchants' Exchange

ANDREWS T. J. under Sheriff, W side B near Taylor

Andrews William T. carpenter, bds Union Hotel

Anejani Peter, E side C near Mill

Antoni John, stone mason, Gould & Curry Mill

Appach Adolph, barkeeper, Old Corner Šaloon

Arick Rufus E. clerk, res Recorder's Office

Historical Society

SECOND DIRECTORY

OF

NEVADA TERRITORY;

EMBRACING A

GENERAL DIRECTORY OF RESIDENTS

OF ALL THE PRINCIPAL TOWNS;

BUSINESS DIRECTORY OF ADVERTISERS;

QUARTZ MILLS, REDUCTION WORKS, TOLL ROADS, ETC.;

OFFICERS OF THE MASONIC, ODD FELLOWS AND SONS OF TEM-PERANCE ASSOCIATIONS; MEMBERS WASHOE STOCK BOARD OF EXCHANGE; FIRE DEPARTMENT;

INCORPORATION ACTS OF VIRGINIA AND GOLD HILL;

AND ALL OTHER INFORMATION CONNECTED WITH THE PROGRESS AND PRESENT CONDITION OF THE TERRITORY:

L80,

AN ACCURATE TABLE OF DISTANCES; LIST OF PUBLIC OFFICERS; AND PRINCIPAL MINING LAWS OF DIFFERENT DISTRICTS; WITH THE RESIDENTS AND PRINCIPAL MINES, MILLS, ETC. OF THE

REESE RIVER REGION.

COMPILED FROM THE MOST RECENT AND AUTHENTIC SOURCES,

By J. WELLS KELLY.

VIRGINIA:

0.008097

1863.

Printed by Valentine & Co., 517 Clay and 514 Commercial Streets, San Francisco.

O'FARRELL MILL, published last year as the Ogden & Wilson. It was put up by George L. Fuller for that company, in November, 1860, being the first mill completed in the district. The main building is forty by eighty feet, with an extension shed having a chute for conveying the rock to the batteries. An engine of twenty-horse power drives eighteen stamps, crushing twelve tons of rock per day. The erection of this mill, with the necessary adjuncts, cost about forty thousand dollars.

To the right of the above, about fifty yards, is a small mill of six stamps, propelled by a twelve-horse power engine. In connection with this mill there are five acres of land. Both establishments are owned by Mr. William O'Connor.

EMPIRE MILL AND MINING Co.—This extensive establishment is situated a short distance below the O'Farrell, on Mill Street; cost of mill, over one hundred thousand dollars. The land about the mill, owned by the company, amounts to twenty acres, and being located immediately within the most improving portion of Virginia, is far more valuable than any other in the county. The building, a very large and substantial one fronts upon the street, and in the rear, where the batteries are situated, and the ore delivered, the company have built splendid road, crossing the cañon about one hundred yards above their office, which is a very neat and comfortable building. Having thus two entrances, no delay is occasioned by the waiting of teams, and everything goes on systematically. The company have two wood ranches, a short distance from Virginia, and owning the teams engaged in hauling quartz and wood, save to the stockholders a very considerable sum in the course of the year. The mill has sixteen stamps, and crushes thirty tons of rock per day. In the amalgamating department there are thirty-seven of Wakelee's patent improved pane with steam chambers, working for both gold and silver. The mine belonging to this company is very valuable, they owning seventy-live feet of the celebrated Gold Hill proper; and in connection with the mine we must mention the fact of their being the only company who have yet struck the "front ledge ? in the hill, although all the other companies are running in

tunnels for the same purpose. From specimens of the rock exhibited to us, we have no hesitation in saying it is a mine of almost fabulous richness. Owners of a mine immensely prolific, with such an extensive mill in close proximity, out of debt, and able to supply other mills than their own with their rich ores, this company would seem to be in the best possible condition for effecting advantageous sales of their property, if such be their purpose, or carry on their operations with eminent success. Employ in mine and mill nearly one hundred hands. Mr. R. N. Graves, Superintendent.

GOULD & CURRY MILL.—The works of this company occupy one of the most beautiful sites in the Territory; located one mile east of Virginia, on an inclosed piece of land, comprising cixty acres. This spot, selected with wise foresight, is 'pecuharly adapted, with its many natural advantages, to the reduction of gold and silver bearing ores. The grounds adjoining and surrounding the works are kept in a neat and orderly manper, an end easily attainable from the gentle slope of the land, combined with a perfect system of drainage. A noticeable feature, as elsewhere, around and in this establishment, is the abundant supply of water. This is obtained from reservoirs situated high up on the mountains, each side of the works. Prominent among the many buildings with which the grounds of this company are diversified, stand the Mill and Ore House. The latter building over one hundred by eighty feet, and forms quite a feature in the general plan. Here the ores from the mines are received, and after a careful drying, an operation performed by two kilns, each forty feet in length, they are taken to the mill in a car running over a track some fifteen bet from the ground. Between this building and the main works, there is a fall of ten feet; the division of the upper and lower grounds being made by an immense wall of stone, bailt with an evident eye to beauty as well as utility. The ill, or main edifice, is an imposing structure, of noble design, the form of a cross, and is two hundred and twenty-five feet long, with wings eighty-seven and a half feet each, being the largest building in the Territory. Immediately over the center each of the four wings, are placed ventilators, which

greatly conduce to the pleasantness of the interior. The inner works are divided into three compartments—the engine, crushing, and amalgamating departments. In the former are the engine and boilers, from which the whole power used in the works is obtained. The engine, a beautiful and perfect piece of workmanship, is from the Pacific Foundry, San Francisco. It is one hundred and fifty horse power. The boilers, three in number, are each twenty-six feet long, forty-two inches in diameter, with double flues fourteen inches. They are inclosed in furnaces built of a peculiar fire-stone found near the works. Directly under the main floor of the engine room are the fire and air pumps. The center of the building comprising the crushing department, is three stories high, running at right angles with the engine and amalgamating rooms. It is one hundred and twenty-five by fifty feet, and contains eight batteries of five stamps each, capable of perfectly crushing thirty tons per day. The drawback heretofore in dry crushing works -the suffocating clouds of dust arising from under the stamps -is here pleasantly avoided by the use of two powerful suction fans. In front of the batteries are four hopper-shaped bins, each holding about ten tons; into these the ore from the ore house is conveyed, and is delivered by its own gravity into the hands of the feeders. On the second floor, directly over the batteries, are situated the fine ore bins, four in number, with a capacity of twenty tons each. Into these the crushed ore, after being elevated and put through a peculiar sieving process, is deposited. Above these again, on the third floor, are ten more bins, for the reception of the dust taken from the batteries. This department is isolated, as it were, being separated from the engine and amalgamating rooms by brick walls rising from the foundations to the roof. The amalgamating room is eighty-seven and one-half by fifty feet, three stories high, and is justly admired as a model of arrangement, convenience, and regularity. The process employed in this establishment-invented and put in practical working by Capt. S. Tyler-is one not heretofore used, and is of undoubted merit and practicability. In this department, as in every part of these works, all the operations are conducted with system and skill. The ores to be treated, after a careful sampling and

weighing, are conveyed in cars, and deposited in seven large pans, on the upper or preparing floor; from thence, it descends to the middle, or amalgamating floor, where it is received in eight large tubs, with a capacity of ten tons each. On this floor, the amalgamation of the ores is completed, and by an easy transition descends to the first or finishing floor, on which are situated eight settling tubs, and twelve pans for washing up. Here the amalgam is received, and having been parted from its excess of mercury by hydraulic pressure, a method peculiar to this establishment, it is conveyed to the smelting house. In this building are situated the assay room, roasting, smelting, and retort furnaces. Here the amalgam, having passed through the successive stages of retorting, smelting, and assaying, is stamped and shipped to San Francisco. It is contemplated to increase this immense establishment to two-fold its present capacity. These works, as also the valuable mine belonging to this company, are under the efficient and successful management of Mr. Charles L. Strong.

Turning up Seven Mile Cañon, and into Cedar Ravine, we meet with the

WINFIELD MILL AND MINING Co.—Messrs. L. A. Booth and John Leavitt, proprietors. Has eight very heavy stamps, one thousand pounds each, crushing twenty tons per day. The proprietors intend shortly to still further increase its capacity by adding another ten stamp battery. Forty pans with steam chambers, and ten wooden tubs, comprise the amalgamating department. This company intend making the experiment of conducting the surplus steam from the escape pipe into the amalgamating tubs, thus saving fuel. The engine, a very fine one, of forty-five horse power, is from the Pacific Foundry, San Francisco. The pans are from the Iron Works of Goss & Lambard, Sacramento. This company is generally employed crushing rock from their own claim at Gold Hill, and work for both gold and silver. Twelve men are employed night and day. John Leavitt, Superintendent.

Suncook Mill.—A. Bassett & Co. owners—located in Cedar Ravine, a short distance above the Winfield Mill. Built in A008113

1861, and is one of the most fortunate in the Territory, having been constantly running since it was constructed. This company crush their own rock, and also do custom work. Has twelve stamps, driven by a splendid engine of thirty horse power, from the Pacific Works of San Francisco, and crushes eighteen tons of ore every twenty-four hours. Employ eight men, and use fifteen six-feet tubs for amalgamating, working for both gold and silver. A. Bassett, Superintendent.

CEDAR HILL MILL, Messrs. C. B. & Chas. Land, proprietors, is situated on Cedar Ravine, one mile west of Virginia. It employs ten men, has three straight batteries of four stamps each, and crushes sixteen tons, running night and day. The engine, forty horse power, comes from the Pacific Foundry, San Francisco. In the amalgamating department there are twelve six-feet tubs, and eight Knoxs' improved pana. This mill does custom work and cost about thirty-five thousand dollars. The owners being enterprising business men, keep their mill constantly employed, and supervise the concernant themselves.

THE MARIPOSA QUARTZ MILL, is located at the foot of Cedar-Hill; it is propelled by a fifteen-horse power steam engine, driving twelve stamps of six hundred pounds each, and crushing fifteen tons of rock per day. Knox's pans and the Hungarian, bowls are used for amalgamating, the pulp being also subjected to a steaming process, as heretofore practiced by the proprietors. Cost of mill about twenty thousand dollars.

FLOWERY DISTRICT.

This District, lying east of and adjoining the Virginia Minin District, was laid out in the fall of '59, a great many good looking ledges having been found there, several of which have since been opened and proved to be rich in gold and silver. Many of the claims at first taken up were afterwards abandoned as worthless; of those retained and prospected to greater or less extent we may name the Lady Bryan, Roger. Monto Cristo, Utah, Norman, Cherokee, Harrison, Flowery, Adriatic, Union, Aurora Borcalis, Uncle Sam, Desert, Angle

1861 showed this district to contain three hundred and thirty nine inhabitants, a number that has since been largely increased Running entirely across it is Six Mile Cañon, a deep ravine, through which, since the opening of the tunnels at Virginia, everal hundred inches of water flow constantly. This water has led to the building of a number of steam quartz mills, and two or three others driven by water, which, besides enhancing the value of the mines, by giving employment to a great many lands, have caused a small town, called Flowery City, to spring the place, as indeed the whole ravine is an active and bustling locality, both by means of the numerous mills along it, and the fine road leading from Virginia to Carson River, and the Butte or Whitman Coal Fields, extending its entire length.

Following down the canon from the Gould & Curry Mill, we we in this district the following mills now in active operation:

SUGAR LOAF MILL, owned by Martin Rancho, near Sugar caf Peak; driven by water falling on an overshot wheel, and enerating about a twenty horse power. The mill has four tamps and two arastras, exclusively employed working rock com the St. John Claim in Silver Star District, and has thus ar been successful in its operation. It will soon be enlarged, the power is sufficient to carry eight or ten stamps. Employs three men, and uses what is known as the Mexican Process in malgamating the ores.

EMPIRE STATE MILL.—Chas. Coover and L. Dunn, propriesituated at foot of Sugar Loaf Peak. Both water and
cam are used for propelling this mill, either being available
that purpose. The water-wheel is forty feet in diameter,
and the engine of fifteen-horse power. The mill employs
ght hands, runs ten stamps, and crushes twelve tons per day.
The company crush their own rock from Gold Hill. Use
Inox's pans, with false bottoms, and Wakelee's patent flue
and, for amalgamating. Lathrop Dunn, Superintendent.

ROGERS SILVER MINING Co., on Flowery Road, 3 miles east

of Virginia. Has a thirty-horse power steam engine, driving two straight double stemmed and square batteries—eight stamps—crushing fourteen tons per day. Company crush their own rock from the Rogers Claim, in Flowery District. Have nine six-feet wooden tubs, and one Knox's improved patent pan in the amalgamating department. Work for both gold and silver. Employ twenty-two men in mill and mine. W. Buncher, Superintendent.

THE FLOWERY MILL, three miles cast of Virginia, is driven by a forty horse power steam engine, made at the Vulcan Works, San Francisco. It runs but eight stamps, crushing twelve tons at present, though its crushing apparatus will be extended to its full capacity as occasion may require. This mill is creeted for custom work, runs night and day, and employs twenty men, and uses Dr. Veatch's Process.

THE BERTOLA MILL, No. 2, is situated at the junction of the Flowery Toll Road and Desert Cañon; water power, with wheel forty two feet in diameter. Has ten stamps and thirty amalgamating pans of the Bertola patent—to be increased to sixty; employs ten hands, runs day and night, and crushes ten tons of rock per twenty-four hours.

THE OLIVE BRANCH MILL—the largest in the district—is situated immediately in the town of Flowery. Built in 1861. It is driven by a thirty-horse power steam engine from the Miners' Foundry, and crushes about twenty-four tons of rock per day. Has sixteen stamps, and uses thirty-two of Knox's Amalgamators, with Palmer's steam-chest attached. Works for both gold and silver. The building covering this mill is seventy-two feet long and sixty wide. Connected with the establishment is a laboratory for testing ores. This company purchase rock, and also crush for customers. Employ twelvemen, and run night and day (Sundays excepted). Charles II. Knox, Superintendent.

There is also a small mill, with two arastras, driven by water power, about two miles below Flowery, and owned by W. II. Frink.

VIRGINIA CITY.

This is the commercial metropolis of Nevada Territory. Situated in the midst of the richest mining region ever known, either in this or any other country, convenient of access from all points of the compass, and, besides its mineral treasures, surrounded by a country which presents lands of the best quality for cultivation and stock raising, this thriving town has risen in a few years from an uninhabited and apparently barren locality of rocky hills and verdureless ledges into a city of thousands of busy, bustling tenants, exhibiting all the comfort and homelike appearance of some antiquated metropolis. It boasts two morning newspapers and one evening, of respectable dimensions, five churches, Masonic, Odd Fellows, and Sons of Temperance institutions, the names of whose lodges and the list of whose officers appear in another portion of this work; schools and seminaries of learning of no ordinary standing, extensive libraries, daily lines of stages running from various points, among which Billy Wilson's line from Carson to Virginia, McCue's line over the mountains, and Sam. Russell & Co.'s Dayton Line, stand pre-eminent for polite and courteous attention and rapidity of travel, connecting with others from all parts of the Territory, and constantly crowded with passengers. The macadamized Toll Roads of Geiger on the north, and the Virginia and Gold Hill Tunnel Company on the south, besides many other improvements and luxuries of a character which remind one more of a city some fifty or a hundred years old than one of two years' growth. We may further observe of this, the largest and most important town in the Territory, that while its situation at the mouth of the most prolific mines in the world, gives it great local advantages, its progress and prosperity have been greatly promoted by the energy and business tact of the inhabitants themselves. Located against the side of an arid and barren mountain, its position, saving proximity to the silver mines, was the most unpropitious possible. Yet, on this site so unfavorable, within a little more than two years from the time it was founded, has sprung up a city abounding with large and substantial fire-proof buildings, a multitude of comfortable houses, and a great number of costly mills and reduction works, while through its streets water flows in abundance, and luxurious

Fernan Sime Ferieni Seciety

MERCANTILE GUIDE

AND

DIRECTORY

FOR

Virginia City, Gold Hill, Silver City

AND

AMERICAN CITY,

COMPRISING

A General Business and Resident Directory for those Cities, with Sketches of their growth, development and resources.

ALSO CONTAINING

Valuable Historical and Statistical Matter

OF UNUSUAL INTEREST,

TOGETHER WITH THE ONLY

ACCURATE MINING DIRECTORY

YET PUBLISHED.

Giving the name of the Mine, number of feet in each claim, the District in which the same is located, and the names of Secretaries, with their respective places of business.

COMPILED BY

CHARLES COLLINS.

VIRGINIA:

C DEFFERACE, BOOK AND JOB PRINTERS, 511 SANSONE STREET, F.

A008000

Territorial--County and City Officials.

Below will be found a list of the various Federal, County and City Officials; likewise the names of heads of Fire Department of Virginia.

Capital of the Territory-Carson.

Supreme Court—George Turner, Chief Justice; Jno. W, North, Associate Justice; Powhattan B. Locke, Associate Justice; Alfred Helm, Clerk.

TERRITORIAL OFFICERS-Jas. W. Nye, Governor and Superintendent of Indian Affairs; Orion Clemens, Secretary; J. T. Lockhart, Indian Agent; W. W. Ross, Auditor; Jno. H. Kinkead, Treasurer; A. F. White, Superintendent of Public Instruction; Robert Howland, Warden of Territorial Prison.

U. S. REVENUE OFFICERS-Warren Wasson, Assessor, Carson, James S. Dilley, Collector, Virginia.

U. S. LAND OFFICERS—Clement T. Rice, Register, Carson; C. N. Noteware, Receiver, Carson.

U. S. MILITARY-J. L. Van Bokkelen, Provost Marshal General.

MILITIA OFFICERS--J. W. Nye. Commander-in-Chief; J. L. Van Bokkelen, Major-General, at Virginia; Almon Hovey, Brig, General 1st Brigade, at Virginia; Jas. McLean, Brig. General 2d Brigade, at Genoa; H. P. Russell, Adjutant General, at Carson.

FIRST JUDICIAL DISTRICT—Comprising Storey, Washoe and Roop counties—John W. North, Judge; George King, Clerk, at Virginia; J. S. Bowker, Deputy Clerk, at Washoe City.

COUNTY OFFICIALS—Leonard W. Ferris, Probate Judge; Wm. H. Howard, Sheriff; N. W. Winton, County Clerk, ex-officio County Auditor, Clerk Probate Court, and Clerk of the Board of County Commissioners; Chas. H. Fish, Recorder; Lloyd Frizell, Assessor; John Easterling, Tax Collector; Isaac E. James, Surveyor; Dighton Corson, Prosecuting Attorney; H. H. Flagg, Martin White, and Chas. H. Knox, Board of County Commissioners.

Township Officers—Gold Hill Precinct—S. A. Kellogg, Justice of the Peace; Wm. H. Beegan, Constable. Virginia Precinct. J. F. Atwill, Justice of the Peace; J. V. B. Perry, Constable.

City Officials -Rufus E. Arick, Mayor. [Common Council-Meet every Tuesday evening-First Ward, John Earl, J. A. Cramer; Second Ward, Geo. H. Shaw, Jas. Brennan; Third Ward, Pembroke Murrey, Alex. Coryell; Fourth Ward, Thos. Parker, R. A. Young.] Geo. F. Vosburg, City Clerk; F. Walters, City Treasurer; Chas. R. Edwards, Assessor; H. K.

Alexander, Tax Collector; C. P. Johnson, Surveyor; John Allman, Street Commissioner; Frank Tilford, City Attorney.

CITY POLICE, ETC-Wm. H. Davenport, Recorder; Chas. W. Cooke, Marshal and Chief of Police; E. F. Clarkson, Captain of Police; City Jailor, M. J. Purcell. Regular Police—11. W. Ward, John Brinton, Thomas Buckley, Wm. McIntosh, Thomas Bulger, Thos. McGee, Denis Hays, B. J. Lynch, Thos. Green, Dale, —— Clancy, Frank Soulé, E. F. Hawks, —— Wilcoxon. City Marshal is Chief of Police.

Quartz Mills and Holsting Works.

Gould & Curry Mill and Mine, situated about one and a half mile east of Virginia City. This is the most extensive mill in the Territory, or perhaps in the world. The mill, at present, runs eighty stamps. It is estimated that this company extract from their ores about a half million bullion monthly. The company employ about 800 men. The mine has three entrances—the lower, the middle, and the upper tunnels. At the mouth of the middle tunnel, which is situated on South I street, large and extensive quartz houses have been creeted. A. Lawton, President; Chas. Bonner, General Superintendent.

MEXICAN MINE, situated between Howard and A streets, was creeted in 1863, has a 25-horse power engine, and the company own 100 feet on the Comstock lode. Alsopp & Co., Proprietors; E. B. Darsey, Superintendent.

Mariposa Quartz Mill, located at the foot of Cedar Hill; it has a 15-horse power engine, running 12 stamps of 600 pounds each. Knox's pans and the Hungarian bowls are used in the amalgamating department. Cost of mill about \$20,000.

HOOSIER STATE MILL, situated on Silver, between G and H streets, was erected in 1862—engire 40-horse power. The machinery was formerly used in the old Spanish Mill, runs 8 stamps, and 24 Knox's pans—was erected in 1862. Jacob Ciark & Geo. Hurst, Proprietors; J. Clark, Superintendent.

CEDAR HILL MILL, located in Cedar Ravine, has a 40-horse power engine, built at the Pacific Foundry, San Francisco, three straight batteries of four stamps each; crushes 16 tons of rock per day; it has 12 6-feet amalgamating tubs, with 8 Knox's improved pans. The mill was creeted at a cost of \$35,000.

EMPIRE STATE MULL, situate at what is known as Sugar Loaf Peak, is run by both water and steam. The water wheel is 40 feet in diameter, with a 15 horse power engine; runs 10 stamps, and crushes about 12 tons of rock per day. It uses Knox's pans, with false bottoms, and Wakelee's patent flue pans; employs 10 men. Chas. Coover & L. Dunn, Proprietors. L. Dunn, Sup't.

STATE MINERALOGIST

STATE OF NEVADA

FOR 1866.

CARSON CITY: JOSEPH E. ECKLEY, STATE PRINTER.



List of Mills in Nevada.

NAME.	Motive Power.	Code p	No. of Stamps.	Weight of Stamps.	No. of Pans.	Nature of Pans.	Grashing Capacity Per Day. Tona.	REVARKA
tlas.							208	
SWOOD	* steam	4	15	600	. 8	W-1-2		
AY SUBIA I	4	4#	16		26-2	Hepburn Knox, Wheeler	25	
DW CL'A	44		28		14	Wheeler	20	
	"	8	20 13	10-800 10-700	80	Knox	85	
UWII FOINT	4	° I	8	••••••			25	
щет	"	44	16	500	8	Knox	12	at to the state of
uglas	4	4"	10		•••••	Knox	8 20	學學是 "大學」在實體學學學
lipse.	66	4	15	650	40	ruain .	16	The second secon
IDITE. No 9	"	51	21	650			25	
DIPO Stata	"	8	16	650	40		30	
a mii :	"	5 1	15 .		44	TV Deeler i	89	a E Edition (Commission of the
	- 1	8	14	8-600 6-750		CHUL Wheeler Hombur.	15	
IIO & Chrev		· · · · · ·] .		24	Knox	17	
JBIET MISIA I		20	80 .	•••••			Refitting.	
xemai i	44	81	8	750	24	Hepburn, Varney	100	
UB. 1	44	9.1	44	600		Knox	12	
	4	24	20	•••••	10 1	Vheeler.	?	
YBVIIIA. I	44	3	12	• • • • • • • • • • • • • • • • • • • •	2-6 E	nox, Wheeler	80	
	- 44		9	••••••		Maria	15	
IIC	4		80		17	V Deeler I	18	
	4	1	16	650			20	
e Island	4	. • 1	20	700	18 K	pox	50 26	
y's	· "		25		13 日	ephurn	80.	
ra'	"		io I	990J. 1	~~ 4	DOX. Henburn	40	
Dire	4	84	8		- 10	miley	19	
ue	1 (5 1	6	750	•••••	* * * * * * * * * * * * * * * * * * * *	12	
ankan, e		5 1	6		AG 12	uox	28	
P	. 11		8	500	U . [AL	LUG WINGGIEF Honburn	25	
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s :	44 1	6 1	20	625	11-1	Wheeler, Varney	85	
Summit	u	21		0-650 4-500	14		14	
Union		5			8	Hepburn	30	
Winfield			10		•		- }	
,	ſ	- 1	- 1			1		
	1	- 1	1		l			
LYON COUNTY.	water	2	30	650	20	Wheeler	55	
Birdsall & Carpenter	ateam	6	20	650	17	Wheeler	80	
Bacon	BACKITI	8	8	550	8	Knox	9	
Bartolo	"	3	5	480	4	Wheeler	8	
Cole & Co		8	8	900	10	Hepburn	14	1
Devil's Gate		6	15	550	15	Wooden Tubs	20	
Daney		1	20	500	6	Wheeler	20	1
Dayton, No. 1	water	- 1	15	800	8	Varney	15	ı
Dayton, No. 2	steam	6		400	2	Knox	15	1
Eagle	water	***:	.5	800	6	Hepburn	20	İ
Eastern Slope	steam	51	16	•	18	Knox	18	1
Excelsior		8	10	650	1 8	Wheelcr	22	l .
Eureka	water	••••	20	650	l å	Knox		ı
Franklin	4	□ 4	10	600 .		Tubs	18	•
Golden Eagle	steam	81	10	850	25		1	1
Illinois	4] 5	20	400	5	HepburnTubs		Į.
Island	*	2	19	650	11			Di
Lindauer & Co	st'm & water	21	15	480	10	Wheeler		١
Metallurgical Works	steam	5	15	700	6	Wheeler		1
Monitor	water		5	450	2	Wheeler	25	1
New York & Nevada	steam	5	20	550	17	Hepburn	. 85	1
Ophir		21	24	600	15	Hepburn	. 00	1
Pioneer	1	6	15	700	15	Tubs and Wheeler	. 20	ام
Phoenix, No. 1	4	6	15	650	8	Tubs and Wheeler	. 19.}	
Phœnix, No. 2	4	7	20	534	84		. 28 5	1
Palmyra	4	1 : 44	10	650	12	Tubs	. 15	1
Rock Point	st'm & water	2	56	- 650	₹ 50	Tube and 6 Hepburn	. 60	
Sparrow & Trench	steam	6	20	600	19		. 25	1
Sherman & Co	• 1	1	. 5	400	2			
Swansea		8	14	900	22		20	
Smith, D. L				450	FA 4			1
Sacramento		8	12	750	12	Tubs		-
	at'm & water	1 7	10	650	7	4 Tubs and Wheeler	. 14	
San Francisco	nteem	4	18	550	13 Jack 🕯	Wheeler	£ 14.	1,
Weston & Co	water 6	- "	10	450	9		. 11	ſ

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Dismantled.

One of these Mills destroyed by are during 1866.

BIENNIAL REPORT

OF THE

STATE MINERALOGIST

OF THE

STATE OF NEVADA,

WOR

THE YEARS 1871 AND 1872.

Λ008456

MILLS.

I am indebted to Mr. Samuel Doake, of Virginia City, who has kindly prepared the following tabular statement of the mills in Storey County:

Name of Mill.		No. tons per day.	Location.	Crushing Ore, from.
Boston Ione Buccor Ramsdale Pacific Pacific Pappoose Pinte Douglas Atlas Petaluma Sapphire Rhodé Island Gold Hill Quartz Sunderland Hoosier State Bierra Nevada Evans Mariposa Sacramento & Meredith Winfleld Atlantic Landy De Lands Nevada Empire State Park & Bowie, No. 1 Park & Bowie, No. 2 Decidental	5 5 15 2 30 5 20 15 15 24 15 25 8 10 18 20 5 12 20 20 15 15	15 25 5 70 14 50 30 45 75 40 50 18 25 40 50 13 30 50 13 30 50 14 50 50 18 50 18 50 18 50 18 50 50 18 50 50 50 50 50 50 50 50 50 50 50 50 50	Gold Cañon	Empire, Gold Hil Crown Point Cropping Idle Woodside Belche Gold Hill Cropping Empire, Gold Hil Crown Poin Crown Poin Crown Poin Hill Belchei Savage Sierra Nevade Savage Hale & Norcrose Idle Chollar Idle Chollar Idle Tailing Mill Tailing Mill Tailing Mill Tailing Mill
Lady Bryan	20 10	50	6-Mile Callon	Idle
Total, 29 mills	899	1,001		

WASHOE COUNTY.

This county is north of Ormsby. It takes its name from a tribe of Indians who inhabit the western portion of the State. A few mining districts have been organized within its boundaries, at different times, but none of them have ever been a source of much profit. The wealth of this county consists chiefly in its agricultural resources and timber lands. Formerly, the streams of water flowing from the caffons in the Sierras into Washoe Valley were made available for milling purposes, in reducing the ores from the Comstock; and at one time no less than ten mills, having an aggregate of two hundred and eighty-one stamps, were in active operation in this county—some of these, moreover, were of the largest size, and first-class in all their appliances. The Ophir Company's Mill, of seventy stamps capacity, and built at a cost of a half million dollars, and Dall's Mill at Franktown, having sixty stamps, were among

the first mills in the State. Since the completion of the Truckee Railroad, however, ore can be delivered so much cheaper to the mills on the Carson River, that with the exception of the Truckee Mill, near Reno, and one or two tailing mills in Washoe Valley, nearly all these mills have been dismantled and abandoned.

RENC

Is the county seat, and is situated on the line of the Central Pacific Railroad. From this point all supplies used in the southwestern section of the State are forwarded, as well as to Douglas, Ormsby, Lyon, and Storey Counties. It is pleasantly located on the banks of the Truckee River, and has many natural advantages for maintaining itself as a prosperous town.

WADSWORTH

Is situated thirty five miles further east, on the line of the railroad. There are located here the repair and machine shops for the Truckee division of the Central Pacific Railroad. From this point freight is shipped to Belmont, Ellsworth, and Columbus; and all the soda and borax obtained in Churchill and Esmeralda Counties are forwarded to this place for shipment to the markets.

WASHOE CITY,

Formerly the county seat, Ophir, and Franktown, since the decline of milling enterprises in this county, are not so flourishing as they were some years ago.

The following interesting description of the agricultural and other resources of this county has been condensed from the columns of the Nevada State Journal, a well edited weekly newspaper published at Reno:

It may be said that Washoe County embraces an area of one thousand five hundred square miles and that of this extent not less than from eight hundred to one thousand square miles will ultimately be found valuable for agricultural and grazing purposes. We think we are speaking within proper bounds of truth, for, in fact, it is difficult to say what noticeable portion of the entire county is not to a greater or less extent fit for grazing. Of the fine arable land (by which we mean land so situated, of proper richness, that crops may be raised by irrigation) we think that there are between three hundred and four hundred square miles. Notwithstanding the rather extensive reclamation and cultivation of lands in Washoe Valley and Truckee Meadows, we do not believe that one fourth of our arable lands have been yet tested to anything like their reasonable capacity for farming operations. The surface of the county alternates in mountain range, valley, hill, and lake. The eastern range of the Sierra Nevada Mountains were ten years ago clothed from valley to summit with forests of excellent pine timber. Since then, great inroads have been made among these fine trees for the procuring of lumber, mining timber, and wood, but enough yet remains in the southwestern portion of the county to form an extensive source of supply for the same purposes, and all accessible to labor and capital. The extreme southwest corner of the county is found within the limits of the remarkable and beautiful Lake Tahoe,

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W. B. EWER......SECTION EDITION

DEWEY & CO., Publishers,

Office, No. 224 Sansome Street, S. E. Cor her of California Street, San Francisco.

Subscription and Advertising Bates

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ELFTOS EX ANYASCE—Postage paid—one yes thin, 68 25; three months, 51.25. Remittene at letters or P. O. orders at our right.

Large advertisements at favorable rates unding notices, legal advertisements, notice in extraordinary type or in particular parts of nearted as special rates.

SANTLE COPTES.—Occasionally we send copies of this sper to pursons who we believe would be benefited by buberfibling for assist us in extending its irreduction. We call the attention of such to our prosesties and terms of subscription.

THE ORIGINAL ARTOLIS in this paper are mostly set is solid type, giving in our columns one-third more readin than is contained in ordinary leaded matter.

Antume all letters to the firm, and not to in

Our latest forms go to press on Thursday evening.

SAN FRANCISCO:

Saturday Morning, Feb. 24, 1877.

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NEW ADVERTISEMENTS.

Talloch's Automatic Ore Feeder, F. Oyden, S. F.; Pacific Iron Works, Rankin, Brayton & Co., S. F.

DELAY OF CENTERNIAL AWARDS. -The Her DELAY OF CHETENRIAL AWARDS.—The Her-dif's Philadelphia special says: Although nearly five months have elapsed since the official an-nouncement of awards to exhibitors at the Cen-tennial exhibition, and over three months have passed since closing, not a single exhibitor has yet received either a diploma or a medal, and but very few have been favored even with re-ports from their exhibits. This causes general disastifaction the first. ports from their exhibits. This causes general dissatisfaction, the fault being at the Centen-nial Commissioners' office, where the reports are nial Commissioners' office, where the reports are delayed. In answer to the question when the eports upon axhibits would be ready, the inquirer was told they were all ready; but when, seeing a pile of them upon a table, he saked if the reports had all been sent out, he was answered; "oh we are holding them back to send diplomas with them." As to when the diplomas would be likely to be sent out, the Director General's Secretary stated that those awarded to foreign exhibitors had been transmitted, and they were soins to begin on a regime of the services they were going to begin on American diplomas in about a mouth. As to how long it would take to get through the business, he would not

THE Southern Pacific railroad is now com-pleted to a point 37 2-10 miles east of Indian Wells. The work has been pushed forward with great energy.

Premiums for the Mechanics' Fair.

As we have previously mentioned, the 12th industrial exhibition of the Mechanics' Institute will open to the public on Tuesday, August 7th, and continue from 10 A. M. to 10 P. M., for one month thereafter. The pavilion will be opened for the reception of goods from and after Monday, July 16th. The driving engine will be in eration one week previous to the epening and exhibitors of machinery in motion will be required to have their machines in running order on that day. No charge of any kind will be made to exhibitors for space. Steam and water will also be furnished free, in reasonable quanti-

The premium list has been issued by the officers of the exhibition. It is important to remember that all premiums will be for the first order of merit ordy. No second class awards or decisions will be made or reported in any case, unless otherwise specified in the premium list. No erwise specified in the pre-miums will be awarded to se premiums will be awarded to sawing machines, in accordance with the request of agents. In the list of paintings, ontaids of the regular medals for certain classes of work, a prize of \$250 will be given for the best painting in oil by a local artist, and a similar prize for the largest and best display of paintings by any exhibitor.

By the means adopted, each article in the premium list must stand on its own merits. It will be understood that while concluse man be will be understood that while concluse man be will be understood that while concluse man be seen as the seen and the seen as the seen are seen as the seen are seen and the seen as the seen are seen as a seen are seen as the seen as the seen are seen as the seen as the seen are seen as the seen as the seen are seen as the seen are seen as the seen as the seen as the seen are seen as the seen a

ularly specified) in that class to which the article receiving the award belongs. A copy of the award of the jury, certified to by the proper officers, will, in all, cases, be given when de-management state elaborate experimental test will be made whenever practicable, and the resuits embodied in a formal report. In cases where each constitutes the premium, as in the horticultural department for instance, the awards vary in accordance with the value of the awards vary in accordance with the value of the exhibit, and the list already published may be elaborated if thought advisable by the Board. The managers do not consider the list already issued as complets, nor are those articles subject to premiums limited to those emborated. One of these premium lists will be forwarded to any one desiring it, by addressing the Secretary of the axhibition, 27 Post sreet. rmai report. In ce

Water for Mining.

Although the rain which has fallen thus far this season has been plenty for the purposes of the farmers thus far, the fall of snow in many parts of the mountains of the State has been en light that the water in the mining ditches is al. ready falling. In fact, unless we have a few more good storms next month, many mining camps will suffer. The rains thus far have bee so warm that in place of leaving mow on the high mountains they have melted what there was there. Of course with no snow to keep the streams running the miners must stop work.

the streams running the miners must stop work. The miners naturally took advantage of what water there was running in the ditches during and after the storms, and they used it to the best advantage, too. The rains were so long delayed that the miners had plenty of time to get their claims in first-class order for work, so that when the water came they "turned it loose" with great effect.

The miners draw their supplies of water from high up in the mountains, where nature stores it

The miners draw their supplies of water from high up in the mountains, where nature stores it up in reservoirs of mow. Long and expensive ditches bring it to the claims where it is to be used, and on the abundance of the supply depends almost entirely the result of the year's work for the gravel miner. Of course, if mow water will be accurate also so that the will be scarce also, so that the looks to the snow for financial salvation as the farmer looks to rain for his.

As we have stated, thus far the deposits of

snow in the mountains are very light for this sea-son of the year. Heavy snows from this out for the next mouth or more, will help the miners out. If they do not come, in a good many campe the prospects for a good season's work are poor, for a warm rain or two, or a few days' sunshine, will melt what little snow remains, and then the ditches will run dry. The gravel miners are anxiously awaiting for the next storm, and we hope it will not be long in

BULLION SHIPMENTS.—Since our last i BULLION SHIPMENTS.—Since our last issue shipments of bullion from prominent mines have been as follows: Con. Virginia, 17th, 6 bars, value, \$19,636,42—February to date, \$167,076.

79: California, 17th, 33 bars bullion, value, \$132,726.47 — total to date, \$519,349,99;
Washington, (Cal.), 561 ounces: Gila. 10th, \$2,341; Tybo Con. February 13th, \$15,319.09—total to date, \$23,837.13; Leopard, February 19th, \$5,200, Modoc, 18th, \$5,200—total to date, \$16,540; Manhattan, 20th, \$12,400.

THE resident physician at the small-pox bos-pital reports to Mr. Gibbs, chairman of the hospital committee of the Board of Supervisora, that during the week ending but Ratember night 25 patients were received. charged cured, and seven deaths tota number of patients und A-5

Comstock Papers.-No. 17,

The Big Mills of Washon.—They Adhere to the 2 gett . Old Methods.

Notwithstanding the success of amalgamation by the part or Washoe process had been fully tablished by the experimental trials made in the summer of 1860, as already related, such was the distrust of the new plan entertained by the Ophir, Gould & Curry and other of the leading commanies on the Comstock, that they acting under the advice of the old school of metallurgista, declined to adopt it in the extensive reduction works comme oed by them in the fall of 1860 and finished the following year. Another reason for these companies sticking to the old and more expensive methods was the belief entertained by them that the great body of their ores was much richer than they afterward: proved to be; it having been supposed that an expense of \$40 or \$50 per ton for their reduction could well be borne, provided the work were so offe stually done as to secure a very high mtage of the gold and silver they contain How much these companies overrated the value of their ores at the start may be inferred from the fact that they offered, in the spring of 1860, to contract with Judge Walsh for the reduction of large quantities thereof at an average rate of \$76 per the, it not being their intention then to work anything of less value than this. Acting under these mesapprehensions these parties projected their seduction works on an extensive and costly scale, these establishments in the subdivision of their departments, the elaboration of the over, and, in short, in both completeness and details, conforming largely to European models.

The Mill of the Cable Camera

Was put up in Washoe valley at a point 12 miles westerly from their mine, this site having been selected because of its proximity to wood and water and in the expectation that a railmiles westerly from their mine, this site having been selected because of its prunimity to wood and water and in the expectation that a railroad would soon be built between these two points. The buildings srected here covered an area of fully an acra, everything having been constructed on a grand scale. Buildes the main edifice, an immense building was put up for the use of the patie process, which was here amended for a time or the process class of annulated for a time or the process class of annulated for a time or the process class of annulated for a time or the process class of annulated for a time or the process class of annulated for a time or the process of the paties. ployed for a time on the poorer class of ores shops, stables, carriage houses, quarters for workmes, superintendent's residence, offices etc., ware all well built and capacious. The machinery, material and workmanning were also first-class, the cost of the entire Accience having amounted to over \$1,000,000. Besides the creating mill, carrying 36 stamps, several furnaces for reacting or chloridizing the creating provided, the Freiberg in connection with the units process having been here treationd. the patio process having been here practiced Rows of huge barrels, used for amagematin purposes and extending the whole length of th mill, were kept in conscious revolution. Th Rows to superpose and extending the warmen to purpose and extending the warmen to the purpose of 400 men were constantly required in the several departments, besides nearly as many more in custing and hashing wood, making lumber, burning charcoal and other outside simpley ber, burning charcoal and other outside simpley. ber, burning charcoal and other outside employ-ments apart from those connected with the mines. A hundred tons of ore were works here daily, independent of that disposed of by here daily, independent of that disposed of by the lpatio method. In addition to the ground about their works the company owned 700 acres of grazing and agricultural lands lying in the valley nees-by and 9,000 acres of woodland on the adjacent mountains, where a saw-mill had been put up for cetting their own lumber. Over this grand establishment Captain William L. Dall exercised a general supervision, with Captain Henry A. Cheever for his assistant, both of these men having had a long and hon-orable service as commanders in our merchant marine.

The Ores Grew Poerer and the Works Couse to Am.

Thus situated, the owners of the richest section of the Comstock lode, and having within themselves everything requisite to work their ores to the best advantage, it was expected by everybody that the Ophir company was on the highway to sure and early fortune, and for a time their affairs really seemed prosperous enough. But their ores, which at first averaged about \$150 per ton, soon began to decline in value, leaving, under their expensive modes of manipulation, such a narrow margin for profit that they were obliged to supplant the same by the more cheap and simple but much derided Washoe pans, through the use of which they would no doubt have reached satisfactory results had not their works been located at such a suits had not their works been located at such a great distance from their mine and had not the latter within a short time after this substitution aster within a short time after this substitution been pretty well exhausted of its paying ores. As it was, this company, with all their bright prospects at the start, their valuable mine, excetanite works and great facilities for ore reduction, achieved but a brief and moderate success; tion, achieved but a brief and moderate success; their expenses after two or three years having outgrown their income to such an extent that they found it expedient to close up their works, which, after their own ore supplies had failed, could not, owing to their remoteness, compete 'r curtom work successfully with mills located

The Final Colleges

time, the business of dismanshing this vast or tablishment was at length commenced, some of the machinery and more valuable material being disposed of to one party and some to another until its entire d until 12 entire demolition was inally access pliabed, the company having meantime dispose of most of their other property in the neighbat hood. With the stoppage of the reduction works the considerable town built up arount them was depopulated and speedily went to di-cay, scarcely a house being now left in the set flourishing city of Ophic to mark where it steads four shing city of Ophir to mark where it is The extinction of the town and of everyth pertaining to it has been as utteres of the e-promising industry which built it up.

The Gould & Curry Mill.

Which was commenced about the same to and finished a little later than the Ophir work surpassed the latter not only in size and cost construction but also in style and perfection of finish. Possessing a property of great suppose value, the owners of this mine, the most awards are not of the size of the si construction but also in style and parfaction finish. Possessing a property of great suppose value, the owners of this mine, the most whom were men of wealth and liberal notices determined that they would put up an establishment commensurate with the magnitude. In importance of their mine and which should or rival anything of the kind ever before on structed in this or any other country, a purpe in which they were heartily and alaly seconds by their general Superintendent. Charles I Strong, also a man of large ideas, and by a means deficient in enterprise, energy and practical ability. With such as management, we supplied with money, the grand undertaking at the being entered upon was pushed ahead my idly, the site fixed for their structure have been a small flat at the junction of Six es Seven Mile canyons, two miles northeasterly Virginia City. The spot was a rugged on rocky and uneven, the cost of elearing away a ground and preparing for the foundation of a main building having amounted to more the had yet been expended upon any mill in territory. The massive valls laid for the secution of the main edition, which was 250 for the foundation of the main edition, which was 250 for the foundation of the main edition, which was 250 for the foundation of the main edition, which was 250 for the foundation of the main edition, which was 250 for the foundation of the main edition, which was 250 for the foundation of the main edition, which was 250 for the foundation of Territory. The massive walls laid for the secution of the main edifice, which was 250 m long with wings 75 feet in length, all built timber, were constructed of hewn stone, take imber, were constructed of hewn stone, all bulk from a quarry near by, and dressed at great epense. The angine, of 150-horse power, splendid piece of machinery, was built at a Pacific works, in San Francisco. There we eight batteries of five stamps each, capable crushing 40 tons of ore per day. For guessing steam to propel this engine, six furnase with three boilers, each 26 feet long and inches in diameter, with 14-inch flues, were priced. In the various departments of this tablishment, notwithstanding every labor-savi device then known in the business had been troduced, the services of 75 men were requisited to the first start of the services of 75 men were requisited in relays day and night, operation here never having been intermitted. With terraced walls and numerous cut-building, place bore something the appearance of a fet field city.

And the End.

And the End.

This company, like the Ophir, entertaining first a great distruct of the Paul or pan presemployed at the outset the Tyler or Vest plan of smalgamation, which involved the of numerous deep tube, the system being of numerous uses a sum of the German, the patie and the process, which latter was after a time whadopted. The total cost of the Gould & One of the mill, all accessories and surroundings inches amounted to over \$1,250,000, a good del this expenditure having been of a kind 4 would, with our present experience in the beness of ore reduction, be considered superfect and some of which was even at that time many believed unnecessary. The history of and some of which was even at that, time; many baliswed unnecessary. The history eff grand and costly establishment was so similar that of the Ophir that we need not here heave it in detail. After a mecasiful car extending through a few years, the course and the mine itself giving out, brought on the course and the mine itself giving out, brought on the course of distinct partial of the process of the course of distinct partials after which is work of disinted of disintegration began and proceeding I pace, has left only the massive founds of the great mill to attest where it stood

MINES IN THE BASE RANGE.-The rest the present great mining trial is of peculiar the present great mining man as the terest to our citizens and readers, and of a importance to mine owners in this district.

Base range has been troubled and vexed to multiplicity of theories bearing on the ge of the country and the deposition of min bearing veins, and outside capital has all been very timid in investing in limestone of mations ever since the subsidence of the Wi Pine accitement; yet the rewards for costi-explorations have been just as certain, and returns equal in value, as any other mining tion on the Pacific coast, not even excepting Comstock. This has been peculiarly that in the Eureka district, and the developes in depth have been of a character that in depth have been of a character that tonished the early doubters. Call the you may—pipe, segregated, fissure, or veins, walls, or no walls—and the fact ted, fissure, or cost --and the fact res venna, walls, or no walls—and the fact two that at a depth of 1,000 feet ore is found as and valuable as at the croppings or surface, with every indication of a permanent class at a lower depth. We do not propose to ment on either of the rival theories now it ventilated, for decisions of the courts will alter geological formations, but to call size alter geological formations, but to call attact to the immense ore bodies that do exist free surface to an unknown depth, and we think can predicate from that fact the continued particle of the continued processing of the cont

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SAN FRANCISCO, SATURDAY, FEBRUARY 10, 1877.

VOLUME BEALV. Number 6.

Comstock Papers.-No. 16. X

Pan Amalgamation, and What It Led To. The trial of pan amalgamation having prove a success, demonstrating the facility and chesp ness with which the Comstock ores could be worked, confidence in the value of the mines was greatly increased, and many parties were araged to put up reduction works who would not otherwise have gone into the business. The popular idea that a vast deal of science, or at cast much practical skill, was indispensable in the treatment of argentiferous ores having been thus partially dissipated, the Californ millmen were quite certain that they could deal with them successfully when a method so similar to that employed in reducing the gold-bearing quarts of this State would answer the purpose. Accordingly a good many of this class repairs Accordingly a good many of this class repaired to Washoe during the summer and fall of 1860, with a view to putting up mills and running them on this new school of ores. The arsetras that had been set up the year before were designed merely for working the quarts found at Gold Hill, in which the most of the gold was free and easily separated, no effort having been made to save the silver which it contained; the miners not then suspecting, in fact, that it carried any of this metal. When the sulphureted silver ores of the Comstock proper came etch silver ores of the Comstock proper came

seed silver ores of the Comstock proper came to be handled, this style of apparatus was found to be wholly inadequate; hence early recourse to more effectual methods became necessary. Era of Active Mill Construction

Era et active sills Cassirection.

The completion in August, 1860, and the successful operations of the Paul and the Coover mills, was immediately followed by the inauguration of numerous other enterprises of this lind, several having, in reality, been planned prior to the above date and in anticipation of the success that it was expected would attend these pioneer establishments. So rapidly, indeed, did this business of mill construction thereafter proceed, that no less than 86 works of this description, carrying a total of 1,200 thereafter proceed, that no less than 86 works of this description, carrying a total of 1,200 stamps, and costing an aggregate of over six million dollars, had been finished and started up by the end of 1861, some 40 or 50 arastras and several patic yards built and set at work meantime, not being included in this estimats. Work upon a good many other mills had also been commenced before the end of that year, the most of which were completed early in 1862, when the era of most active mill construction terminated in so far as the Comstock mines were concerned, this industry having, for the next concerned, this industry having, for the next three or four years, been transferred to Eamer-sida. Reese river, Pine Grove, Humboldt, and other interior districts.

Location, Cost and Capacity.

Locaties, Cost and Capacity.

Of the mills built for reducing the Comstock cree eight, carrying 114 stamps and costing \$200,000, were located in Ormsby county; siz. carrying 106 stamps, and costing \$1,200,000, were located in Washoe county; forty, carrying 573 stamps, and costing in the aggregate \$3,700, out, were located in Storey county; twenty-two, carrying 360 stamps, and costing \$1,000,000, were located in Lyon county, and ten, carrying 34, and costing \$300,000, were located in Emeraida county, there having been erected, up to the end of 1861, not more than two or three small establishments of this kind in any other portion of Nevada Territory.

The first Pariles to Put 110 Wastandrives Ma.

The First Parties to Put Up Water-Oriven Ma-chinery,

East of the Sierra, for the purpose of ore reduction, were Judge James Walah and his partner, Joseph Woodworth, who, on their first visit to Washoe, in the latter part of June. visit to Washoe, in the latter part of June, 1850, threw a slight dam across the Carson river, at a point about one mile above the present town of Dayton, then Chinatown, and, ent town of Dayton, then Chinatown, and, diretting the water into a side race, employed it for propelling a couple of arastras, which they constructed and put up there for testing the Gold Hill ores, they having bought from Comstock a small claim at that point before purchasing the silver bearing deposit a mise further north, and which afterwards constituted the site of the great Washoe discovery. The water right so occupied on the river was, the

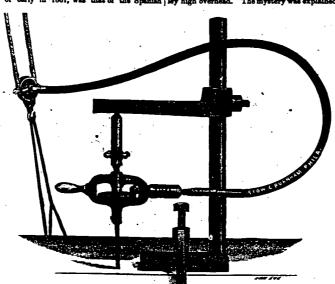
next year, further utilized by the co next year, turner utilized by the construction there of additional arastras and, finally, by the erection of extensive reduction works, this now being the site of the present Ophir company's large and efficient mill. Besides Paul, Coover and Harris, the follow-

Besides Paul, Coover and Harris, the follow-ing parties commenced the erection of milla, and, in some cases, completed and had them running before the end of 1860: Richard Ogden and J. Downes Wilson, who, in November, 1860, finished the Ogden & Wilson mill, the first one completed in the Virginia City district; Henry G. Blasdei, Alphene Seples, Irrail W. Knox, who built the Olive Branch mill, Flowery district, M.Nalter, hall-Knox, who coult the three Branch mil. Flowery districts. McNulty, who buils what was afterwards known as the Bacon mill; Peter Frothingham, who put up a small establishment on Carson river, four miles below Dayton; John B. Winters, connected with Woodworth & Moshemes in the helicitage of the Carson Flowers. Carson river, four miles below Dayson; John R. Wintern, connected with Woodworth & Mosheimer in the building of the Cerson River mill; John Atchison, Logan and Holmes, whose works were also on Carson river; Trusch & a co Sparrow; De Land, Eclipse mill; and various other persons, whose names we cannot now recall to memory. Among the mills that were rous begun this year and completed near the end of it or early in 1861, was that of the Spanish

Flexible Power Transmitter.

This is a very simple and useful device, as the accompanying illustration will show. It is the first successful application of a flexible shaft for general purposes of transmission of power. The Polytechnic Review, during the late exhibition, thus described this piece of mechanism: Pass, ing along the north avenue of machinery hall, our attention was attracted to what appe be a section of inch leather hose, with a revolving twist drill for a nousle, the hose lying quietly on the floor and the drill or nossie mak ing a clean, smooth hole through a chilled car wheel already perforated several times by the

Following the "hose" backward and around a corner it was seen to terminate in the arbor of a rapidly revolving grooved pulley fastened temporarily to the floor and driven by a braided round leather belt, which after several corner turnings is seen to be driven by a grooved pulley high overhead. The mystery was explained.



THE STOW FLEXIBLE POWER TRANSMITTER.

company, at Virginia City; the Aurora, Kaller, Dayton, the Sproul and several other mills on Carson river, besides a number of small on Carson river, besides a number of small on Carson river, besides a number of small on the stablishments along Gold canyen, one or two about Virginia City and several along Six-Miles to any farure, while transmitting unabated the to any farure, while transmitting unabated the canyon, in the Flowery district. In the next the control of these papers something will be said about the Ophir, Gould & Carry and other extensive works put up in 1861-2 at an enormous appenditure of money, but which, after a few parts, ceased operations and were finally districted to any angle, a twist or rabbit it may be applied to any angle, a twist or rabbit it may be applied to any angle, a twist or rabbit canyon, in the Flowery district. In the next mumber of these papers something will be said about the Ophir, Gould & Curry and other extensive works put up in 1861-2 sê an enormous expenditure of money, but which, after a few years, ceased operations and were finally dismantled, with some remarks upon the causes that lead to these disastrous results.

REAR-ADMIRAL JAMES ALDES died in this REAR-ADMERAL JAMES ALDER died in this city on Tuesday last. Admiral Alden took part in the Mexican war, and was present at the capture of Vera Cruz and Tobasco. He commanded the South Carolism in 1801, the Richmond in 1862, and was at the engagement with Forts St. Philip and Jackson, and jat the capture of New Orleans. In 1869 he was made Chief of the Bureau of Navigation.

THE stagnation of certain manufacturing in-terests is indicated with terrible distinctness at Newark, N. J., where one-sighth, of the popu-lation is dependent upon public charity.

Own hundred and three deaths from small-pox were reported in London last week, the largest number during the present spidemic, except in the first week of January.

it may be applied, to any angle, a twist or rabbit drill, a tap, die, diamond drill, wood ange, carving and polishing tool, horse dipper, or any other implement requiring rotation and rapid and easy adjustment.
Carried under a heavy casting, or into the

manhole of a boiler, or wherever boring, drilling, polishing, etc., is required, the application and guidance by hand is all that is needed. Few gumance oy nand is all that is needed. Few more simple and convenient devices have been presented to notice, and each day new applica-tibus are presented. Cloth shearing and enting and the cutting of flue tubes are easily effected by its means. The patentee is Nelson Stow, and the manufacturers are 8tow & Burnham, and the manufacturers are Stow & Burnham No. 500 North Fifteenth street, Philadelphia.

A CALL has been issued for a meeting of the National Teachers' Association, to be held in Washington on the 1st, 2d and 3d of March. Subjects of interest to the cause of education have been arranged for discussion.

Whip-Making and the Effects of Steady Employment.

Simple as it appears, a first-class linen-plaited vhalebone whip is constructed in an exceedingly interesting and ingenious manner, and it requires careful and honest management to uniformly produce a perfect and durable article. The stock for manufacturing must be judiciously chosen and the liquid or sticking material correctly compounded and applied in proper con-dition. The American Whip Company, of Westfield, Mass., well known in the trade in all American cities, is undoubtedly the largest factory in the world. In no other establishment is so large a variety of whips made in such perfection and great numbers.

Thirty years ago, says Mr. H. J. Bush (one of the leading founders of this company), a knife and plane were all the tools employed by a journeyman whip-maker. Now, we should knife and plane were all the tools employed by a journeyman whip-maker. Now, we should judge that \$50,000 would not pay for the improved tools and machinery in this single establishment. The most ingenious in construction and operation is the plaiting machinery with its dozens of wheels revolving and enrying different strands of thread in an amazing mamber of different ways, rapidly forming parfect fitting braid to the varying surface of the whip-stock. One of the latest invented machines plaits the button on the stocks more swelly than all

braid to the varying surface of the whip-stock. One of the latest invented suchines plaits the buttons on the stocks more evenly than, and as perfect as, the human hand.

The American Whip Company occupy a large four-story brick building, employing from 40 to 50 men when in full operatess. One hundred and fifty dozen or about 2,000 whips can be turned out daily. Although the largest, this factory is only one of many equally well-deserving factories in the vicinity.

Westfald, for more than a quarter of a century, has been noted as being beadquarters for whip and cigar-making in the United States. During the past 10 years the town has, from appearances, doubled in wealth if not in population. The braiding of horsehide and buckskin lashes, enaps, and the working of buttons, etc., on whips taken into the industrious homes of the villagers, has given the town a thriftiness of the villagers, has given the town a thriftiness ranky anjoyed of late years by their neighbors in other parts of New England. This exemptifies the great benefit to any community of having some light employment for women and children. Although the remunsration may be very low, such employment tells largely in its general results. Some such employment universal in California would produce a wonderful change in the happiness and prosperity of our people.

THE Centennial mine, Nevada county, has paid its first dividend, aggregating \$3,000. The Foothill Tidings says of the mine: When it is remembered that the Centennial is a new mine—that only a few months ago the locators of the —that only a few months ago the locators of the mine were going round town soliciting parises to take a little stock in it at nearmal er-'bedrock" rates, "just to help it on its feet you know,"—and that it has paid its expenses from the word go, and pays now dividend number one, amounting to more than the whole mine was held at a few months ago, we have a realization of why people will continue to put money into these legitimate mining enterprises, even though they do not all pan est as soon and as well as the Contennial. Some of them, do and the average will turn out as well as most commercial ventures, if only good judgment followed by good management, go with the investment.

A Useful Device.—We received a curious little arrangement this week from C. H. Barrows, of Willimantic, Connections, in the shape of a "moustache protector." It is a device to place on the edge of a cup to keep the moustache out of the tea or coffee, and is much better than the ordinary moustashe cup. It is self-adjustable, and by means of spring clamps will fit any cup, tumbler, mug or bowl, and is really a useful thing for moustached gentlemis. It may be carried in the vest poolset, being made of very thin metal, nickel plated. The invention is a new one, and is just being introduced for sale.

PACIFIC MILL AND MINING COMPANY.

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THE

LAND OF SILVER.

BY

JOHN J. POWELL,

"The Golden State and its Resources."

SAN FRANCISCO:

BACON & COMPANY, BOOK AND JOB PRINTERS,

Corner Clay and Sansome Streets.

1876.

STOREY COUNTY.

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NAME.	Location.	Motive.	STAMPS.	Tons
Boston	Gold Cañon	Steam		
Ione		"	5	
Succor	. "	"	15	
Ramsdale		"	2	
Pacific	. "	"	30	
Pappoose		- 66	5	
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Douglas	"	` ((15	
Atlas	· ·	46	15	
Petaluma	"	"	24	45
Sapphire	"	٠ دد	¥5	75
Rhode Island	"	u T	25	
Gold Hill Quartz	"	66	8	18
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Hoosier State	Virginia	"	18	25 40.
Sierra Nevada	"	"	20	50
Evans	Seven-mile Can	"		- ' "
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Occidental	Silver Star Dict	"		•••
Lady Bryan		"	20	50
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PACIFIC MILL&MINING. COMPANY.

Schedule of Froherty

(Real Estate, Moills, &c.)

owned by

Pacific Moill & Moining Company.

1876.

For Certificate of Incorporation of Pacific Mill)
un Moining Company, and Certified List of its Officers,
Sec Pages 170 + 176).

A010648

Lease) 10 years.

Va. & Trucker R. R. Co.

Pacifie Mill & Miy los (Sec. 31, 1875)

Parcel of Land - in Story Co. - State of chevada described as follows;

Regimenç on the crothern boundary of the bould & Ourn, Track of land, so called, at a point which bears North 1520 West 3 chains distant from the N. M. Corner of the Monte Christo Claim, so called, being M. S. Survey of Claim. numbered 76 in Forouskip 17, North of Range numbered 21 Carcer of Sand East, Monto Deable Base and Meridian, and ourning thence

in Seven Mile along the croth line of said Eneld yourn Fract ofland, North Canon and 62th East 4 Chairs - to the Met side of the Ravine, also Right of Way South 152° East 3 chains to the ch. M. Corner of said U.S. for Vailing Survey runnbered 76, and following the West line of said Hume from durvey numbered 76, - South 15-20 East a further distance about with the North line of Bowies fence and 100 feet Northerty 24'2 acres therefrom, 10 chains to the Ravino, thence following the Mist sede of the Serve Mile Canon Ravine, Northwesterly, until it intersect, the before mentioned without boundary line of said would young tract ofland; Ince bearings, Magnetic Vanatin 162° East

Jogether with a right of way thereto, from a point at on near the Pan Mile, so called, of the bacific Mile Mily Co. over, in through, and across any and all other lands of Va. + S. R. M. Co. - by any route to be selected by said Pacific Mill Myles, for the purpose, of reasonable andth, with the right to erich and maintain in, on, over, along and across said right of way any and all clitches, flume, Carrying, conducting, or bransporting from, at or near, said Pau Mill or clawhere, to the ferencies above particularly described, any and ail thines, tailings, crother matter or time which said Pacific Mill the los may desire to carry, and cuche, or transport as aforesaid.

Agreement, in reference to the Above Sease Pacific Mill Min loo. with Va. Vinckee R. R. loo.

(Lec. 31, 1875.)

The Va. o Inickee R.R. Co. That have the right, when whentarily allowed by the Pacific Mile VM. Co., to pass below said leased promises, to take up and collect all said tailings and slines at way point between the lower line of said promises and whom a point 1200 feet below the Espress mile, so called, and we then believed said points for the purpose of extracting the metals therefrom as its (said R.R. Co's) own to fix its own benefit + advantage; and shall have the right to join on to any slines or reservoirs of the Pacific Mile VM. Co. at the point when the places and tailings shall be by the Pacific Mile VM. Co., voluntarily allowed to pass below

The right to reclaim as its own all such tailings and stimes so som as they shall have have have have to a fourt

Whatever from the same may pase or be.

Thail desire to sell the plusies and tailings collected upon said leased premises, it shall receive bids therein and that in case the bid of the Va. o J. R. R. Co. shall evering or be equal to the bid of the Va. o J. R. R. Co. shall evering or be equal to the bid of any other person for the flux chase of the same the Pacific Mill Mr. Co. will sell the same to the Va. o J. R. Co. at the price so bid by the Va. o J. R. Co.

The Va. of. R. R. Co. shall also have the right to maintain and we in its present size ocapacity the ditch running from the Minfield Mile, so called, to and across said leased premises; or if said Pacific Mile VIII. Co. shall so elect, another one, to be furnished by said Pacific Mile VIII. Co., of equal capacity and of equal advantage braid Va. of R. R. Co.

41 Va. y ruckee R. R. Co. 1 Lease Pacific Mill & My Go. (May 3, 1876) Ten (10) year Beginning at a point in line with the North fence of Bowies yard, from which with privilege the cr. E. Cor. of said Jence bear 8. 78° M. distant 18 links: Thence running of 10 years Vilourse - 8.18° E. -8 chs. +74 links to a Stone Wall on the croth side of Siro mile barion ne ore. - Thence, following said Stone Wall - 2 Course - ct. 63° 8. 1 ch. + 38 links - Thence -3ª Course - East - 1 ch. + 40 links to the end of said wall - thence, following the Water Course of said on mile Canon" - 4 Course - 8. 84° 6. 2 chs. -10 links - w the confluence of said " Sire mile banon and Seven mile Tarcel of Land Canon"- Thence 5th Course B. 613° E. 2 chs. + 30 links to a Stone Wall in Seven mile thence 6 Course - A. 34° E. 30 links - thence 7 Course - A. 53 2° M. 3 chr. Canon'-Strag + 50 links, crossing Seven Mile Canon at 3 chains - thence 8th Course -County-State N. 92° M. 4 chs. +50 links - at 2 chs. + 16 links is the S. E. Corner of the old of chevada. Gould Houry Mile foundation - and from there - to the end of the - containing 8th lowerse, following East face of Stone Wall - thence 9th Course, following about of acres. The windings of said seven mile Canon to the beginning of the 10 bourse ct. 382° M. 5 chs. + + 50 links - Thence - 10 Course - 8. 78° M. 8chs. + 10 links Who Mest line of U. S. bovernment Survey No. 76 - at 3 chs. Quarter Section Corner on West line of Jection cho. 27 in Township cho. 17, chorth of Range No. 21 East-Moute Diable Base and Mendian bears of 70°6. distant 3 cho. + 61 links - thence 11 bourse on West line of said U. S. G. Survey Av. 76 - S. 152° E. 1 ch. +51 links - and thence -12 Con Ur. 78° 6. 5 cho. 0 15 links to the place of beginning. - Survey by true bearing. with Mag. Var. of 162° East. -To hold said premises for the term of 10 years from the date hereof with the privilege of 10 years more on application to. The Pacific Mile Mig Co. Thay all tages which may be lawfully assessed upon the premises. 101.0661

MINES AND MINING

IN THE STATES AND TERRITORIES

WEST OF THE ROCKY MOUNTAINS,

FOR THE YEAR 1870.

BY ROSSITER W. RAYMOND, UNITED STATES COMMISSIONER OF MINING STATISTICS.

COLORADO : CHOOL OF MINES GOLDAN, COLORADO

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1872.

to the cam-shafts; and counter-shafting and belting perform the same office for the pans and rock-breaker. The pans are usually driven by separate pulleys, arranged on an auxiliary line-shaft, under the row of pans, which receives its power from the main shaft. The power required for each stamp of ordinary or average weight, with due allowance for friction, is about one and a half horse-power.* The power demanded for a pan is from three to six horse-power, according to its capacity. The expenditure of power per ton of ore crushed, ground, and amalgamated, judging by the relation existing between the power of the engines provided, and the work performed by the mills, is between one and a half and three horse-power, averaging, probably, about two, but varying according to the capacity and economy of the mill.

The quicksilver charged with amalgam is carefully cleaned by washing and skimming, and strained through a canvas filter, which retains the amalgam. When this straining is performed, not after every charge of ore, but at longer intervals, a considerable quantity of the fluid quicksilver solution of amalgam accumulates, and this is frequently returned to the pans, as its "charged" condition is thought to render it

more active than pure metal in the amalgamating process.

Pans and settlers are thoroughly cleaned at stated intervals, or on special occasions, all the iron work being carefully scraped with a knife to collect the adhering hard amalgam. In many cases one-fourth, or even a larger proportion of the total product of amalgam is obtained in

Retorting and melting .- The amalgam, having been strained and forcibly pressed, to expel as far as practicable the fluid quicksilver, is then subjected to the process of sublimation in cast-iron retorts, from which the quicksilver, escaping and condensing in the exhaust-pipe, passes into a receiver, where it is collected under water, while the crude bullion remains behind.

The retort is usually cylindrical, about 12 inches in inside diameter, and 3 to 5 feet long, the casting being 11 inch thick. The front end is closed with a cover which is tightly fastened and luted with clay after the introduction of the charge. The opposite end is usually conoidal in form, contracting to a diameter of 21 inches where it connects with the exhaust-pipe, turning downward into the condenser. The retort is set in a brick furnace with suitable fire-place, dampers, and flues.

The amalgam is charged, sometimes in iron trays, sometimes directly upon the bottom of the retort, the iron surface in either case being previously covered with a thin wash of clay or battery-slime to prevent the adherence of the metals. Whiting, wood-ashes, and paper are recommended for this purpose, as less likely to choke the pores of the bullion.

The amalgam being charged, and the door properly closed and luted. heat is applied, at first gently and afterward with gradually increasing intensity. Too high initial heat is likely to fuse the surface of the bullion and prevent the escape of quicksilver from within. When quicksilver ceases to pass over into the receiver, the retort is gradually cooled and the bullion withdrawn. The charge for a cylinder of the dimensions above described is about 1,200 pounds, and the usual time of firing about eight hours. About one-sixth of the charge, or 200

† The strained mercury is also more or less "charged" with amalgam. Only after retorting is it free.-R. W. R.

pounds of crude bullion from 1,200 pounds of amalgam, is usually obtained from the retort, to be broken up, melted, and cast in ingots ready for market. The loss of weight in melting is between 2 and 3 per cent. The ingots are assayed, and their fineness, (in thousandths of gold and silver.) with their coin value in dollars and cents, is stamped upon them. The value of the ounce of bullion ready for market usually varies between \$1.75 and \$2; the gold representing about one-third and the silver about two thirds of the whole amount.

Slimes and tailings.—The term "tailings" is applied to the sand or pulp leaving the settler or agitator. The term "slimes" generally applies to that portion of the ore which is crushed under the stamps to an impalpably fine condition, and usually passes out of the mill without being deposited in the tanks when the coarser sands are collected for pan treatment. That part of the tailings which by grinding in the pans has been reduced to a slimy condition is sometimes called "pan slimes," and thus distinguished from "battery slimes."*

The battery slimes are usually allowed to escape, or only caught in reservoirs below those of the tailings. The tailings are variously treated to extract the quicksilver and amalgam which they still retain. Concentrators, blanket sluices, etc., are used for this purpose, or large reservoirs are constructed in which the tailings accumulate, and after months of exposure to the weather are worked over again with profit.

The ordinary result of the pan treatment is 65 to 75 per cent. of the assay value. The subsequent treatment of the tailings may increase it

to 85 or 90 per cent., or even more.

The stream of water carrying the tailings out of the mill is usually passed over blanket-sluices, to save amalgam, mercury, and heavy particles of ore. These sluices or tables are shallow troughs about 20 inches wide, with sides an inch or two high, and of indefinite length. A number are usually placed side by side—sometimes two, three, or four, sometimes fifteen or twenty, with a fall of 6 to 12 inches in every 12 feet. They are covered with strips of coarse blanket about 2 feet wide, made for the purpose, and cut into lengths of 10 or 15 feet to facilitate removal and washing. As the stream of tailings runs over them they retain the heavier portions, while the poorer sand is washed away, the quantity of water being carefully regulated to produce this effect. An attendant usually sweeps the surface lightly with a broom, distributing the material and assisting the action of the water. The blankets are taken up at intervals usually of twelve hours and washed out in a tub of water. While the blankets of one table are washing, the stream is turned so as to run over the neighboring table or tables.

In each of the principal cañons below Virginia City are continuous series of blanket-sluices aggregating several miles in length. Some are owned by the mills, but generally they belong to contractors. According to the report of the surveyor general there were, in 1866, over 2,200 feet of blanket-sluices in Six-mile Cañon alone. Their cost is estimated

at \$1 per foot, including blankets.t

t The stream being constant, the advantage of having more than two tables side by side is evident. One extra table is required, and no more, whether the number in use

be one or a dozen.—R. W. R.

^{*} The horse-power developed by a 650-pound stamp, dropping 81 inches (14 feet)

⁷⁵ times per minute, is $\frac{650 \times 17 \times 75}{24 \times 33,000} = 1.15$ horse power. About 30 per cent is added for friction in gearing and between cam and tappet, and for the power expended in revolving the stamp.-R. W. R.

[&]quot;The Comstock slimes are richer than the tailings, because they contain a larger proportion of rich sulphurets. For the same reason they are much more difficult of treatment, their fineness being unfavorable to concentration, and their mineralogical character to simple amalgamation.—R. W. R.

[‡] For the last two or three years the profits of the blanket-sluice owners have been declining by reason of the low grade of ore worked at the mills, and the greater economy of operations there roudering the tailings less valuable. Sudden freshets in the cations have damaged this kind of property, and swept away accumulations of tailings.—R. W. R.

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The concentrations washed from the blankets are worked in pans,

and usually yield from \$18 or \$20 to \$30 per ton.

Treatment of tailings .- After passing the blanket-tables, or other concentrating apparatus, the tailings accumulate in reservoirs. The largest of these are on the plains near the mouths of the cañons. Thus two or three reservoirs at Dayton, near the mouth of Gold Hill Cañon, contain at present, perhaps, 400,000 tons of tailings; the Carson reservoir, receiving the stream from Six-mile Cañon, contains not less than 200,000 tons. A smaller reservoir two miles up the canon was formerly estimated to contain 100,000 tons; but a large portion has been swept away by freshets. The assays of the slimy and richer parts* of the tailings may show a value \$25 or \$30 per ton, while the coarse sands vary in value from \$4 or \$5, to \$12 or \$15 per ton, according to the original character of the ore and the efficiency of the mill process to which it has been subjected. The contents of some of the smaller reservoirs about Dayton are said to have an average value of \$16 to \$18 per ton, though the larger reservoirs are probably less rich, a number of assays giving results varying from \$9 to \$13 per ton. The Carson reservoir has been tested by many assays, varying between \$7 50 and \$25, averaging about \$13 per ton.

Tailings are usually treated by raw amalgamation, a business which occupies a number of establishments. The largest of these is Birdsall's Mill, at Dayton, which was formerly a custom crushing-mill, with thirty stamps and twenty Wheeler pans. The stamps are not now required, and ten or fifteen large pans have been added, so that the mill can amalgamate 250 to 300 tons of tailings daily. The Carson River furnishes

ample water-power.

Janin and Baldwin's Dayton Mill, also at Dayton, has five McCone pans, with a capacity of about 50 tons per day. It is driven by steam. Each pan works a charge of 4,000 or 5,000 pounds and four or five charges per day. Sulphate of copper and salt are supplied to the pans with each charge, of the former 3 to 6 pounds per ton, and of the latter 20 to 30 pounds—a large excess. The pans are covered and supplied with steam, maintaining a high temperature. The yield is thought to be about 60 per cent. of the assay value, which is said to average \$16 or \$18 per ton. From the accounts of this mill, it appears that during five months ending October 31, 1869, the quantity worked was 6,732 tons, of which the average yield was \$9 75 per ton. The total expense, including extraordinary repairs, (refitting mill and purchasing new pans,) was \$43,672, or \$6 48 per ton. The current ordinary expense appears to have been, per ton-

have been, per ton-	81 4	0
For labor	9)5
		38
		35
Salt Sulphate of copper	1 2	20
Sulphate of copper]	12
Fuel Castings		
	5	00

[.] The quality of the tailings in a reservoir is frequently affected by the proportion of alimes retained with the tailings. The climes remaining, by reason of their fineness, however, may wettle at the lower end of the reservoir, along the dam, or they may be carried over and either had or caught in some other reservoir below. The catamia by commences is thus bases and of the terrioral par the stream of the seri Holocal and the very powers portions of the over But tailings containing a small proportion of slimes, though they asset higher in consequence, do not always yield more under the ordinary pan treatment—a circumstance which has ere now brought puruntles the ordinary pan treatment—a circumstance which has chasers and contractors to grief.-R. W. R.

The mill employs seventeen men, viz: one foreman, five amalgamators, (three by day and two by night,) two engineers, one wood-passer, three teamsters, (bringing tailings from the reservoir,) and five shovelers, (loading teams and turning tailings over to dry.) The tailings here treated are somewhat richer than ordinary, and require more chemicals. Wood is also expensive here, costing \$10, and more, per cord. Tailings of lower grade, treated with less chemicals, more quickly, in mills of greater capacity, and with cheaped fuel, would require proportionately less outlay in running expense. Thus at Avery's tailing mills in Washoe Valley, where wood is \$6 per cord, the cost per ton is said to be but \$3.50.

Treatment of slimes.—All attempts to work slimes by raw amalgamation in pans (i. c., without previous roasting) were for a long time unsuccessful. This was attributed partly to the finely divided, clayey condition of the material, by reason of which the quicksilver and amalgam became coated with a slimy film, preventing amalgamation and causing great mechanical loss of mercury; partly also to the probable presence of the silver as sulphurets, as in the first-class ores, which require a chloridizing roasting to prepare them for amalgamation. Roasting being too expensive, under the circumstances, for slimes, this material has been either mixed with tailings, (or thrown back into the battery pulp,) and worked over in the pans, in which case it is impossible to say how much of its value has been extracted; or it has been allowed to run off with the common failings, and be caught, sometimes in the great reservoirs at the canon mouths, sometimes by special dams constructed for the purpose.*

Within a year or two past, however, slimes have been successfully treated in pans, without roasting, by a process which differs from the ordinary pan amalgamation of fresh ores or tailings, chiefly in the quantities of chemical reagents employed.† The mills of Messrs. Janin and Mr. I. S. Parke, in Six-mile Canon, have reduced with profit, in this man-

ner, large quantities of slimes.

In the Janin mill there are four McCone pans, receiving 2,500 pounds of slime at each charge. Twelve pounds of the sulphate of copper and thirty-six pounds of salt are added with each charge, and the whole is worked for two hours before putting in the quicksilver. Little or no grinding is required, as the material is already exceedingly fine; the muller is raised high enough to avoid unnecessary friction, and revolved at the speed usual in working ore, the object being to keep up the circulation of the pulp. After two hours the quicksilver is added in large quantity, usually 300 pounds. The charge is then worked four hours longer, and afterward drawn off into the settler; when the amalgam is collected, while the residue is passed through large agitators, before finding its way to the tailing stream, in order to save as much as possible of the escaping amalgam and quicksilver. The employment of so much quicksilver, together with the clayey nature of the slimes, causes a large loss of that metal, said to be about five pounds to the ton of

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^{*} It is unfortunate that the plan of saving slimes in reservoirs was not put in operation in the early days of Washee mining, when this material was enormous in quantity and very rich. Millions of dollars were lost by this neglect, never to be recovered unless the Carson River may be made to "give up its dead."-R. W. R.

[†] Messrs. Louis and Henry Janin deserve the credit of solving this problem, both theoretically and practically. With characteristic intelligence and skill, they experimented in the direction indicated by scientific principles, and opened to the limited pan process a new realm of possible applications, the boundary of which is not yet determined.-R. W. R.

¹ The regular charge of ore would be 4000 or 5,000 pounds; but alimes increase greatly in bulk on the addition of water.- IL W. IL